We claim:

1. A composition, comprising a 2 to 20 base 3'-OH, 5'-OH synthetic sequence selected from the group consisting of $(G_xT_y)_n$, $(T_yG_x)_n$, $a(G_xT_y)_n$, $a(T_yG_x)_n$, $(G_xT_y)_nb$, $(T_yG_x)_nb$, $a(G_xT_y)_nb$, $a(T_yG_x)_nb$, wherein x and y is an integer between 1 and 7, n is an integer between 1 and 12, a and b are one or more As, Cs, Gs or Ts and a pharmaceutically acceptable carrier.

2. The composition of claim 1, wherein the sequence is between 2 and 15 bases.

3. The composition of claim 2, wherein the sequence is between 2 and 10 bases.

4. The composition of claim 3, wherein the sequence is between 2 and 7 bases.

5. The composition of claim 1, further comprising a chemotherapeutic agent.

6. The composition of claim 5, wherein the chemotherapeutic agent is selected from the group consisting of antimetabolites, alkylating agents and hormone antagonists.

7. A composition, comprising a sequence selected from the group consisting SEQ ID NOs:7-18, 23-47, 50-66, and 81-83 and a pharmaceutically acceptable carrier.

8. The composition of claim 7, wherein the sequence is selected from the group consisting of SEQ ID NOs:7, 8, 9, 10, 22-65, 70-75, 79 and 80.

9. The composition of claim 7, further comprising a chemotherapeutic agent.

10. The composition of claim 9, wherein the chemotherapeutic agent is selected from the group consisting of an antimetabolite, an alkylating agent and an hormone antagonist.

11. A method, wherein a composition comprising a 2-20 base 3'-OH, 5'-OH synthetic sequence selected from the group consisting of $(G_xT_y)_n$, $(T_yG_x)_n$, $a(G_xT_y)_n$, $a(T_yG_x)_n$, $(G_xT_y)_nb$, $(T_yG_x)_nb$, $a(G_xT_y)_nb$, $a(T_yG_x)_nb$, wherein x and y is an integer between 1 and 7, n is an integer between 1 and 12, a and b are one or more As, Cs, Gs or Ts and a pharmaceutically acceptable carrier is administered to an animal having cancer in an amount effective to induce a response selected from the group consisting of induction of cell cycle arrest, inhibition of proliferation, activation of caspases and induction of apoptosis in cancer cells and production of cytokines by immune system cells.

12. The method of claim 11, wherein the sequence is between 2 and 15 bases.

13. The method of claim 12, wherein the sequence is between 2 and 10 bases.

14. The method of claim 13, wherein the sequence is between 2 and 7 bases.

15. The method of claim 11, wherein the response is induction of cell cycle arrest in the cancer cells.

16. The method of claim 11, wherein the response is inhibition of proliferation of the cancer cells.

17. The method of claim 11, wherein the response is activation of caspases in the cancer cells.

18. The method of claim 17, wherein the caspases are selected from the group consisting of caspase 3 and caspase 7.

19. The method of claim 11, wherein the response is induction of apoptosis in the cancer cells.

20. The method of claim 19, wherein the induction of apoptosis is independent of a cell property selected from the group consisting of Fas, p53/p21, p21/waf-1/CIP, $p15^{ink4B}$, $p16^{ink4}$, drug resistance, caspase 3, TGF-beta 1 receptor and hormone dependence.

21. The method of claim 11, wherein the response is production of cytokines by the immune system cells.

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22. The method of claim 21, wherein the cytokines are selected from the group consisting of IL-1-beta, IL-6, IL-10, IL-12, and TNF-alpha.

23. The method of claim 11, wherein the cancer is selected from the group consisting of a primary carcinoma, a secondary carcinoma, a primary sarcoma and a secondary sarcoma.

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24. The method of claim 23, wherein the cancer is selected from the group consisting of leukemia, lymphoma, breast, prostate, colorectal, ovarian and bone cancer and metastases therefrom.

25. The method of claim 11, further comprising a chemotherapeutic agent.

26. The method of claim 25, wherein the chemotherapeutic agent is selected from the group consisting of an antimetabolite, an alkylating agent and an hormone antagonists.

27. A method, wherein a composition comprising a 2-20 base 3'-OH, 5"-OH synthetic sequence selected from the group consisting SEQ ID NOs:7-18, 23-47, 50-66, and 81-83 and a pharmaceutically acceptable carrier is administered to an animal having cancer in an amount effective to induce a response selected from the group consisting of induction of cell cycle arrest, inhibition of proliferation, activation of caspases and induction of apoptosis in cancer cells and production of cytokines by immune system cells.

28. The method of claim 27, wherein the sequences are selected from the group consisting of SEQ ID NOs:7, 8, 9, 10, 22-65, 70-75, 79 and 80.

29. The method of claim 27, wherein the response is induction of cell cycle arrest in the cancer cells.

30. The method of claim 27, wherein the response is inhibition of proliferation of the cancer cells.

31. The method of claim 27, wherein the response is activation of caspases in the cancer cells.

32. The method of claim 31, wherein the caspases are selected from the group consisting of caspase 3 and caspase 7.

33. The method of claim 27, wherein the response is induction of apoptosis in the cancer cells.

34. The method of claim 33, wherein the induction of apoptosis is independent of a cell property selected from the group consisting of Fas, p53/p21, p21/waf-1/CIP, $p15^{ink4B}$, $p16^{ink4}$, drug resistance, caspase 3, TGF-beta 1 receptor and hormone dependence.

35. The method of claim 27, wherein the response is production of cytokines by the immune system cells.

36. The method of claim 35, wherein the cytokines are selected from the group consisting of IL-1-beta, IL-6, IL-10, IL-12, and TNF-alpha.

37. The method of claim 27, wherein the cancer is selected from the group consisting of a primary carcinoma, a secondary carcinoma, a primary sarcoma and a secondary sarcoma.

38. The method of claim 37, wherein the cancer is selected from the group consisting of leukemia, lymphoma, breast, prostate, colorectal, ovarian and bone cancer and metastases therefrom.

39. The method of claim 27, further comprising a chemotherapeutic agent.

40. The method of claim 39, wherein the chemotherapeutic agent is selected from the group consisting of an antimetabolite, an alkylating agent and an hormone antagonists.

41. A method, wherein a composition comprising a 2-20 base 3'-OH, 5'-OH synthetic sequence selected from the group consisting of $(G_xT_y)_n$, $(T_yG_x)_n$, $a(G_xT_y)_n$, $a(T_yG_x)_n$, $(G_xT_y)_nb$, $(T_yG_x)_nb$, $a(G_xT_y)_nb$, $a(T_yG_x)_nb$, wherein x and y is an integer between 1 and 7, n is an integer between 1 and 12, a and b are one or more As, Cs, Gs or Ts and a pharmaceutically acceptable carrier is administered to an animal having cancer in an amount effective to treat the cancer in the animal.

42. A method, wherein a composition comprising a sequence selected from the group consisting of SEQ ID NOs:7-18, 23-47, 50-66, and 81-83 and a pharmaceutically acceptable carrier is administered to an animal having cancer in an amount effective to treat the cancer in the animal.